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GEOGRAPHY, ENVIRONMENTAL EDUCATION AND DISASTER MITIGATION: GREAT EXPECTATIONS

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Introduction

In this paper, I will begin by making a few comments on the various agendas that I perceive to be operating in the context of geography, disaster mitigation and education, and the rationale for the inclusion of disaster-related topics in geography and social studies curricula. I will then consider various factors that impinge on how students may relate to our teaching, and say a few words on recent changes in the role of teachers and what could well be regarded as the de-professionalisation of teaching. I will then close with a couple of suggestions about the directions I think we might try to achieve our disaster mitigation goals.

The place of hazards and disasters in school geography

Geographers have long been interested in natural disasters, and much of the academic work into the causes and consequences of disasters has been accomplished by geographers. School curricula in New Zealand, England, Australia and many other countries acknowledge that the school subject most appropriate for teaching about disasters is geography. We should note that elsewhere, especially in the United States, both disasters and environmental education are part of the science curriculum. The existence of a subject in the curriculum called 'geography' does not however tell us very much about what is taught or why it is taught, and I should like to begin by exploring what the purposes of teaching about disasters might be.

In 1989 the International Ad Hoc Group of Experts established by the Secretary General of the United Nations to advise on the International Decade for Natural Disaster Reduction stated that: *"Knowledgeable and involved people are critical to building a safe society"* (Press, 1989).

I note with interest that the General Aims of Social Studies Education as expressed in the draft social studies curriculum document (NZ Ministry of Education, 1994: 9) include enabling *"students to contribute to a changing society as confident, informed, and responsible participants"*. There seems to be general agreement worldwide that the study of geography, wherever it is placed in the school curriculum, should influence the attitudes and behaviour of our young citizens.

While this is an admirable aim, it is by no means clear precisely what is meant by citizens who are knowledgeable or involved, or what the Ministry in New Zealand means by citizens who are informed and responsible participants in society. Furthermore, it is even more unclear how we are to evaluate our achievement of these aims. A decade ago, in the context of public education in disaster mitigation, John Handmer (1985) reminded us that the assumption that education causes awareness (attitude change) and thus causes (correct) behaviour underlies most public education efforts and is intuitively appealing, but in practice the linkage has often been shown to be absent.

What does it mean to be knowledgeable in the context of hazards?

The suggestion that there is a need for knowledgeable or informed people in the creation of a 'safe society' implies that central to the problem inhibiting such a society in the past has been a lack of appropriate knowledge in a large proportion of the population. In the context of natural hazards, it implies that the knowledge needed is specifically related to the geophysical events that are involved in most natural disasters.

For much of the history of western society, it has been axiomatic that absolute knowledge is not only attainable but unquestionably desirable (Smithson, 1989). Such beliefs have led to the corollaries that the more factual knowledge we have, the better off we are, and that we should avoid uncertainty. When faced with uncertainty, we believe it is the duty of scientists to discover methods for measuring and ultimately for predicting and controlling the focus of the uncertainty.

For people who live in more developed societies who have spare resources to enable them to plan personally for potential hazards and for whom some political influence is a reality, this approach may be appropriate. However, for people for whom survival is sufficiently problematic regardless of the influence of natural hazard, attempts at increasing knowledge of specific natural hazards may be at best ineffective and at worst a distraction from other more immediate problems. For such people, 'knowledgeable' may be defined as knowing how to place hazards within the context of their lives. Learning more and more about the physical nature of those environmental phenomena that we call 'natural hazards' is probably useful for a very small minority of people on earth. There are undoubtedly many reasons for promoting understanding of the physical nature of the earth, but I am not convinced that disaster mitigation is foremost amongst them.

However, knowledge is only one of the two requirements perceived as being essential for the creation of a safe society. The other requirement

is that people be 'involved' and while, once again, this seems to be unexceptional, the precise definition of the term 'involved' may be interpreted in a variety of ways, each of which may be significant in leading to the creation of the kind of world hoped for by the architects of the International Decade.

What does it mean to be involved in the context of hazards and disasters?

For those who are suddenly afflicted by the onset of some extreme natural event, it may seem irrelevant to question the meaning of involvement in the context of hazards and disasters. A United Nations Disaster Relief Organisation publication (UNDRO, 1986) states that: *"Public education programmes are often limited to emergency assistance, first aid and relief issues. Whilst these concerns are critically important, the lack of attention to prevention issues continues to be a major shortcoming".*

There often appears to be an assumption within the hazard management community that successful disaster preparedness rests on official and formal plans. Discussion on the recent Kobe earthquake in which 5,500 people died and nearly a quarter of a million houses were damaged, is still focussed on the problems of official response mechanisms to the disaster (Japanese National IDNDR Committee, 1995:10). However, I am mindful of the statement by Richard Eisner, director of the Bay Area Regional Earthquake Preparedness Project, a branch of California's Office of Emergency Services that : *"For a number of years now our emphasis has been on developing skills, getting people to be able to fend for themselves for those magic 72 hours. We have been telling people not to depend on the Government for anything. For that period of time we are basically an underdeveloped country"* (Enbom, 1991). I quote this not to imply that official preparations are not important but to draw attention to the danger of the inadvertent disempowerment of a population through excessive reliance on centralised or technocratic responses.

I should now like to turn to involvement in disasters that may not affect our own communities, and in this case, the claim of geography to preeminence is much stronger.

In an increasingly interdependent world, we find ourselves involved in relationships with those affected by disasters at both empathetic and financial levels, and at a variety of scales, from the regional, through national to international.

While it would be good to believe that we empathise equally with neighbours in the next street and those in northern India who may be afflicted by earthquakes, it does seem that our powers of concern are reduced in direct proportion to our distance from those who suffer. On the other hand, our interest in disasters more distant from our own homes is aroused when it becomes apparent that our taxes or insurance premiums may increase, or public expenditure be reduced, to meet the increased costs incurred. It is probable that for most of the population of Queensland, Australia, the only thought about a spate of disasters that occurred in 1990 and culminated in severe flooding of vast areas of the interior was prompted by the explanatory note included with car and property insurance renewal notices showing increased premiums.

Within a single nation, involvement in disasters may be shown to exist in a variety of ways. A similar connection may also be shown between those whose homes are "safe" and disasters in other parts of the world. In poor countries where the economic costs of disasters may exceed 3% or 4% of the gross national product, the effects of such disasters on their national economies and the individual welfare of their people may be dramatic and set back their development aims for decades. It is in such circumstances that aid agencies in many developed countries appeal for help. However, while the help offered in such circumstances is often considerable in the short term, concern may be eclipsed within a short time either by some other disaster elsewhere or by more immediate concerns in the donor country. The involvement of those of us in the developed countries may, however, go further than that suggested by our humanitarian concerns. Mitchell (1989) has shown that although some very poor countries such as Bangladesh and Haiti are disaster-prone, disaster deaths are generally higher in middle income countries that are experiencing rapid economic development, war or other societal upheavals. Such countries include Guatemala, Nicaragua, Peru, Iran, South Korea, and Papua New Guinea. Only three of the countries that possess high disaster death rates as measured by Red Cross data are included in the World Bank's list of low-income economies. The other four are middle and upper-middle income countries. While it must be admitted that the number of deaths is only one way of judging the severity of a disaster, other measures such as the material cost of restoring infrastructure would show a similar pattern since poor countries have proportionately less such infrastructure to lose than middle income countries. The link between this pattern of relative disaster loss and international involvement lies within the realm of international trade. It is the middle income, rapidly-changing economies that participate most in international trade and if such countries suffer major blows to their economies as a result of disaster, then the carry-over effects on the rest of us may be painful in less dramatic but no less real ways. Any progress whereby countries may more successfully manage natural hazards may lead to economic benefits both to the countries directly concerned, where substantial additional resources may then be allocated for the improvement of human welfare and also to their trading partners.

In terms, then, of creating *involved* people, it would appear that our efforts should emphasise that both from humanitarian and economic viewpoints, we are all involved in the effects of natural disasters at local, national and global scales, and that for these reasons we should all be involved in seeking solutions to the toll of disasters, for our own benefit if not for that of others.

In the light of these definitions of 'knowledgeable' and 'involved', what should we be teaching our students about natural hazards and disasters?

The notion of a safe society and the means of achieving such a society depends as much on how we define our society as on any notion of threatening natural events. Over the past two or three decades it has become a truism that natural physical events lead to disasters only when they impact on a vulnerable human community. However, that vulnerability is frequently perceived either in terms of an unfortunate choice of location *vis a vis* a potentially hazardous event such as a cyclone, earthquake or flood or in terms of some inadequacy on the part of an afflicted community that should be overcome, such as poor building standards, lack of accurate forecasting or failure to evacuate the area in good time.

Viewing disasters as isolated and random events that differ from some predetermined norm and identifying specific weaknesses in particular local social structures may be a useful strategy in terms of managerial and technological responses. However, stressing the uniqueness of each 'event' may serve to conceal the assumption that if only we could forecast these random events more accurately and establish more appropriate adjustments to them, then a safe society would inevitably result. Such an assumption is based on the notion that under 'normal' circumstances not only are all aspects of the natural environment other than the extremes predictable, but also that all other aspects of human life are either predictable or irrelevant.

Over a decade ago, Hewitt (1983: 24,25) suggested four fundamental principles on which our perceptions of hazards and disasters should be based.

- Natural hazards are not dependent upon the geophysical process that may initiate damage.
- Most natural disasters are characteristic rather than accidental features of the places and societies where they occur.
- Human awareness of and responses to natural hazards are not dependent upon the geophysical conditions but rather on human-environmental relationships.
- The causes, internal features and consequences of natural disasters are not explained in terms of disaster events themselves but rather in terms of the on-going social order and its everyday relations with the natural environment.

He points out that in terms of human ecology, the natural extremes are more expected and knowable than many of the contemporary social developments that pervade everyday life. He suggests that in most places and societies where disasters occur, the natural events are about as certain as anything within one or two generations. In pursuing his theme, Hewitt asks firstly if any sane social order should disregard the likelihood of massive destruction simply because it is not quite sure on which day or year it will occur and, secondly, if people in many disasters are unaware and poorly prepared because natural extremes are rare and unpredictable? In answer, he points to the characteristic impacts of modernisation in terms of weakening and destroying traditional arrangements whereby extended family, village communities and reciprocal duties of leader and led could absorb and counter such problems. So that for many people today, the everyday conditions of work, life support, social and mental security, or the artificial environment require all of their risk-avoiding and risk-taking energies. Many people in less developed nations, and amongst the more vulnerable in developed nations, do not have the time or means to prepare for and recover from natural disaster.

Hewitt's points are reiterated in the most recent issue of Connect, the newsletter of the U.N. Environmental Program (UNESCO-UNEP, 1995) in which it is stated that the term 'development', which was traditionally perceived merely as economic growth, has undergone a change to include, and currently even centre upon, the well-being of people. Today, development is a social issue, no longer just an economic issue. Does our geography teaching about disasters reflect such perceptions and encourage our young people to work towards increased social justice?

This of course is undoubtedly the intention of the writers of much geography teaching. However, as the old adage goes: the road to hell is paved with good intentions, and aims and achievements frequently fail to match up. Even if we assume that the message that is intended by our curricula meets the requirements of the current world order, the message as it is received by our students may be very different.

What influences our students' perception of what we teach?

Explanations of how and why people place particular interpretations on information regarding hazards and disasters may be sought in the literature of cognitive and inter-personal psychology, while explanations of how and why citizens act in the context of hazards and disasters are offered by theories of environmental education and theories of mass media communication.

The contribution of cognitive psychology: schema theory

Current theories of cognitive psychology are based on a number of assumptions. First, it is assumed that each individual constructs idiosyncratic meanings for knowledge or information. Second, it is assumed that prior knowledge, particularly if it is specific, and conceptions, both from past teaching and from broader experiences, have an effect on learning and third, the process of making meaning from mediated messages is related to mental structures. The emphasis is placed here on mediated messages since learning about hazards and disasters is usually conducted through discourse presented by the mass media, and, in the case of students, by teachers and text books rather than through independent exploration as is the case with many other aspects of the physical world. The process of constructing personal meaning from mediated messages, whether they be from text books, the mass media or from

teacher discourse can only be achieved by relating it to existing knowledge and structures of knowledge. These cognitive structures have become known as schemata.

Schemata serve a number of specific purposes in learning.

First, when an individual is confronted with text or oral discourse, its interpretation will depend on the schemata which are activated in response to it. Failure to understand the message may be for one of three reasons: first, because the receiver does not possess appropriate schemata to which to relate the message; second, because s/he possesses appropriate schemata but the clues provided in the message were not sufficient for the receiver to make the links with existing schemata; or third, because the receiver called on an inadequate or inappropriate schema and distorted the message to fit.

Secondly, schemata influence the ways in which new information is learned and remembered. If material is received which cannot be added to an existing schema by accretion or by tuning, but which is insufficient to promote the total reorganisation of a schema, then it will either be ignored or processed piecemeal.

Thirdly, according to Rumelhart (1980), schemata assist in problem solving, storing knowledge about a certain type of problem, a set of procedures which might be used to solve a particular type of problem and in guiding understanding of what the problem is.

Schema theory offers, firstly, an explanation of how people interpret new information and how their interpretations may influence their recognition and treatment of problematic situations and secondly, some guidance on when schema-based processing is likely to occur.

The contribution of interpersonal psychology: personality factors

While cognitive psychologists have focused their attention on the concept of schemata, interpersonal psychologists have placed great emphasis on personal efficacy. Both Ajzen and Fishbien (1980) and Hines *et al.* (1987) consider that attitude is an important factor in whether people will act in accordance with their beliefs. However, the term is frequently loosely defined and in the context of environmental, political or hazard-related issues may be equated with notions of locus of control, efficacy and the phenomenon of psychic numbing. Wilkins (1991) cites work by Campbell *et al.* (1960) that showed that people who score highly in efficacy tend to vote more regularly, work for and contribute to political parties and are generally active in political processes.

In a similar vein, Hines *et al.* (1987) identified individuals as having either an external or an internal locus of control. Individuals with an external locus of control do not attempt to bring about change because they because they attribute change to others more powerful than themselves. Individuals with an internal locus of control believe that their activities or behaviours are likely to have impact of their world.

Feelings of obligation or duty are also important factors in influencing people's behaviour. People who accept some personal responsibility towards the environment are more likely to engage in responsible environmental behaviours (sic) than individuals who feel no such responsibility.

As geographers we have perhaps been lax in asserting the contribution of our field to the citizenship goals of education, and this could well be one of the reasons for the claims of some for the recognition of environmental education as a school subject in its own right, rather than as an educational objective to which a wide range of subjects should contribute. However, this is not the issue today and much of the work undertaken in the name of environmental education could and perhaps should be applied to social and geographical education in general and to disaster mitigation in particular. This is clear from Stapp's 1969 statement on environmental education: *"Environmental education is aimed at producing a citizenry that is knowledgeable concerning the biophysical environment and its associated problems, aware of how to help solve problems and motivated to work towards their solution".*

However, worthy as this aim may be, environmental education researchers have been at pains to discover links between environmental knowledge, environmental attitudes and 'appropriate' behaviour and their results are not reassuring. From an early assumption that increased knowledge leads to increased awareness of issues which in turn leads to a predisposition to behave in environmentally appropriate ways, a number of researchers have developed more complex models of environmental behaviour.

Thus, Hines, Hungerford and Tomera (1987) suggested that environmental knowledge and skills and various personality factors influence a person's intentions, but that the implementation of these intentions is strongly influenced by other situational factors such as economic constraints, social expectations and opportunity.

Hungerford and Volk (1990) also suggest that the concept of environmental knowledge can be further divided. They stated that: *"Before an individual can intentionally act on a particular environmental problem, that individual must be cognisant of the existence of the issue. Thus knowledge of the issue seems to be a prerequisite to action. An individual must also possess knowledge of those courses of action which are available and which will be most effective in a given situation. Another critical component is skill in applying this knowledge appropriately to a given issue (p. 10)."* However, if students accept new information on the environment either by accreting or tuning existing inadequate schemata, rather than by being persuaded to reconstruct their schemata, then appropriate action is most unlikely to result. The teaching of 'correct facts' is unlikely to dislodge their misconceptions.

Finally, there are theories of mass media communication

In order to play their part in society, citizens need to be able to place their personal experiences in the wider context. Since personal experience of disaster is, fortunately for most of us, limited, this wider context within which we must place our personal experience is frequently defined for us by mediated messages. Such messages in our society are usually mediated through mass media news reports, although fictional accounts of disasters and, in the context of students, through text books and the school curriculum. may also be significant. Wilkins (1991) suggests that individual experiences with hazards provide only a piece of the puzzle for individuals in their construction of a global perspective and it remains for mediated information to place them in a political, economic and scientific frame. However, she cites a range of literature which suggests that many people fail to absorb and make sense of natural and technological risks. It is apparently difficult for people to transfer information about one hazard to another (Drabek, 1986) and while some people who say they heard and saw coverage of such well reported events as the Bhopal disaster can recall few 'facts' about it, others retain the 'facts' and link them with their own lives (Wilkins, 1987).

Developing disaster schemata

The foregoing accounts suggest that the average person might tend to process information about disasters and environmental risk in a piecemeal way because hazards and disasters are concrete events, fortunately, usually at a considerable physical and emotional distance from us, and are often reported to us in mediated messages as event-oriented and novel. We study them at our leisure.

However, it may also be proposed that people are cognitively miserly. Schematic processing is generally speaking easier than piecemeal processing, and unless the strategy of ignoring new information is adopted, it will generally be easier to accommodate new information into existing schemata, unless it is sufficiently powerful to force restructuring. Since disasters are seen as 'newsworthy' by the media and 'motivating' by the educational community, as well as exciting by purveyors of fiction in print and audio-visual media, I suggest that few members of our society will lack at least rudimentary schemata of hazards and disasters. The evidence from research in media handling of disasters suggests remarkable consistency. Natural disasters are presented as event-based, but the events themselves such as earthquakes, volcanic eruptions and cyclones are relatively predictable and many individuals know enough about these events to 'cue' a category. The 'human angle' frequently adopted emphasises threats to life and health and are therefore 'affect-laden'. When we receive these mediated messages, they are usually of little personal concern and although the news media do present complex and analytical information on disasters, the greatest emphasis is usually on the effects of the event on human lives and property and can therefore be accommodated within relatively simple schemata. Finally, given the reduced concentration span encouraged by ten second 'news-grabs' on radio and television in the western world, judgements are frequently likely to be made in haste.

Processing information on hazards and disasters through such simple schemata is unlikely to promote the high levels of self-efficacy that have been shown to be a precondition for personal action by research in both interpersonal psychology and in environmental education.

The foregoing comments have been based largely in the context of the effects on hazard and disaster schemata of mass media. However, as noted earlier, hazards and disasters are a popular and common focus in geography and social studies curricula in many countries and such topics form a part of many geography text books published for use in schools. The images of disasters presented by these books and the contribution they may be expected to make to the development of students' schemata of disaster provides a salutary lesson.

The presentation of hazards and disasters in text books

The approach to the analysis

The analysis which follows is of a number of text books in common use in Queensland high schools, including one written and published here in New Zealand. In each case, those parts of the text that refer to hazards, disasters or any of the extreme physical events that can lead to disaster for human beings were regarded as the data for analysis. This data was analysed in a manner akin to that advocated by Glaser and Strauss (1969) and Strauss and Corbin (1990) and called 'grounded theory' and the approach to the findings may be termed 'phenomenographic'. The outcome of this analysis was a number of themes or images which may contribute to students' assimilation, modification or reconstruction of their existing hazard and disaster schemata. It should be noted that this study made no attempt to discern the precise nature of students' schemata nor to identify the extent to which those schemata are formed as a result of specific experiences whether vicarious or actual.

Conceptions of hazards identified in the text book presentations

Analysis of the references to hazards and disasters in those general geography text books and of the language used in those text books devoted specifically to hazards and disasters, suggests that geography text books as currently available to our students are based on six primary conceptions of natural hazards.

These may be expressed in the following ways:

1. natural hazards represent exciting forces of nature;
2. natural hazards represent impressive forces of nature that are inflicted against human beings;
3. natural hazards are one side of a battle for supremacy between human beings and nature;
4. natural hazards exist and while we (in the West) can counter them, those in the developing world are vulnerable;

5. natural hazards are a natural part of our environment and we should learn to live with them;
6. natural hazards lead to disasters because of poor human planning.

The significance of these conceptions for disaster education

It would be simplistic to suggest that particular books promote particular conceptions of hazards and disasters. Indeed, each of the books studied includes elements of each of the various conceptions outlined above. It could be suggested that if all the conceptions identified are valid and all are represented within most text books that students are likely to encounter, then little harm is done. However, in the context of schema theory as outlined above, Wilkins (1991) has explained that general knowledge and environmental events are stored in long-term memory as frames or scripts that can be retrieved and used as analogues of current events, and, as such, serve as guides to action. She cites Walter Lippman (1922) who, in anticipation of modern schema theory, stated: *"For the most part, we do not first see, and then define, we define first and then see. In the great blooming, bustling confusion of the outer world, we pick out what our culture has already defined for us, and we tend to perceive that which we have picked out in the form stereotyped for us by our culture".* Thus, although the conceptions of hazard and disaster identified here may be equated with a range of schemata that may be held, students may be expected to focus on those aspects of the books which may be most easily accommodated to pre-existing schemata or alternatively they may be expected to process the new information piecemeal as an individual event. Since the media have ensured that most of us have at least some rudimentary schemata of hazard and disaster and both text books and the media present a people-focus (and therefore an affective emphasis) on disaster, then accommodation is the most probable response. Furthermore, since the schemata encouraged and supported by both media and text books emphasise that disasters are event-centred then students will be not be encouraged to develop an internal locus of control or a sense of personal responsibility for disasters, whether close to home or at a distance.

If as educators we inadvertently support and encourage the simplistic schemata of disasters that our students already possess as a result of their experiences with the media, then we are unlikely to promote the more complex schemata that are needed if citizens are to play their full role in disaster mitigation.

Teachers as professionals are more than able to discuss and resolve such problems. However, there are moves afoot internationally, however, that I see as inimical to the professionalism of teachers in both schools and universities, and although I have drawn attention to some aspects of teaching about hazards and disasters that need to be addressed, I should like to close by making a few comments on why I am not sanguine about it happening.

Teacher professionalism and the future of social education

My first fear for teaching is that we are becoming totally bogged down by bureaucracy, and that the main effect of this is to limit teachers' professionalism severely.

It is a truism that we are living in a world of change, and as Hargreaves (1994) points out, people are always wanting teachers to change. Current global competitiveness between the western economies, the restructuring of the economies of the former eastern block, and dire warnings about environmental catastrophe are resulting in immense moral panics about how we should prepare the future generations in our various nations. In a world characterised increasingly (in Hargreaves words) by *"accelerated change, intense compression of time and space, cultural diversity, technological complexity, national insecurity and scientific uncertainty, the task of finding solutions to society's unsolved and insoluble problems is increasingly being left to teachers".*

The context in which we as teachers are working seems increasingly to be one in which modernist schools and universities struggle to maintain their structures in an increasingly post-modern world. It seems that the professionalism of teachers, defined as the exercise of wise and discretionary judgement in situations that they understand, will stand or fall on the basis of this struggle.

Hargreaves explains that the struggle can be seen in teachers' roles in four main ways:

1. the teacher's role expands to take on new problems and mandates;
2. innovations multiply as change accelerates, creating a sense of overload;
3. with the collapse of moral certainties, old missions and purposes begin to crumble;
4. the methods and strategies that teachers use, together with their underlying knowledge base are constantly criticised – even amongst educators themselves – as scientific certainties lose their credibility.

If these four points give an accurate description of many teachers' current working lives, then the case that teachers' professionalism is probably deteriorating is made since the chances of teachers exercising wise and discretionary judgement in situations that they understand must diminish under such circumstances.

The changes that I have mentioned so far could be regarded as originating outside the teaching profession and therefore as having been imposed on teachers. However, perhaps one of the most dramatic changes that has hit geographical education in recent years would, I suspect, have the wholehearted support of most geography teachers. This is the increased emphasis on environmental education. I should like to suggest that in this area also, teachers may be losing their professional independence as a direct result of pressures of too rapid change.

I was frightened to read the findings of a survey reported by Baker (1991)[1] which suggests that education about our natural environment

as currently undertaken in the schools of Australia, is vulnerable to influences inimical to the development of powers of reasoned argument. According to the survey, secondary school teachers consider the media to be the most important resource for environmental education. Environment groups came second and publishers came third. Given the fact that many text book writers are themselves teachers, it is probable that much of the material carried in text books also has its origins in materials emanating from the media and environmental pressure groups.

Let me put forward one possible explanation for current approaches to environmental education in geography, and by extension to disaster education, that does not reflect well on teachers, professionalism. I must repeat that I am not speaking against the current emphasis on environmental care. I am concerned, however, at the way in which the debate about how our environment should be cared for has been seized by political groups and portrayed as, firstly, a recent phenomenon, and secondly, as a matter of such extreme urgency that rational consideration of evidence and possible courses of action should be set aside.

Allaby (1990) explains the process whereby such an idea is promoted. He explains that the environmental movement is political. This means that it seeks to reform the relationship between human beings and their non-human environment by means of legislation. To do this, it must operate at two levels. Firstly, it must persuade politicians of the need for the changes that it advocates, and secondly, it must show that voters will continue to support those politicians who favour environmentalism.

At both levels environmentalists must present their arguments in a sensational form. Their messages must be clear, simple enough for anyone to grasp quickly, and the consequences of ignoring them must be made to seem dire. As a political strategy, this technique is indisputable. However, as a basis for education, it comes perilously close to indoctrination, and although there are those who have said that in desperate situations, indoctrination is justified, I personally am not convinced that we have got to that stage. The facts are not always easy to interpret, and at any one time, there may be a number of theories underlying the facts that lead to alternative interpretations and conclusions. Nor are the warnings of dire consequences usually justified.

Australian Geography Text Books Analysed to Reveal Conceptions of Hazards and Disasters.

Butler, J et al. (1986) ***Wide World of Geography, Book 3***. Heinemann Educational Australia; Richmond, Victoria.

Butler, J.E. (1989) ***Natural Disasters.*** 3rd edition Heinemann Educational Australia; Richmond, Victoria.

Dolan, C. & Ross, S. (1989) ***Hazard Geography***. Melbourne: Longman Cheshire.

Gallaher, H.H. and Peterson, J.A. (1987) ***Landforms: An Introduction to Australian Geomorphology.*** Melbourne: Oxford University Press.

Gerber, R., Lidstone J. & Mead, S. (1989) ***Living in Our World 1***. Brisbane: The Jacaranda Press.

Grenyer, N. (1985) ***Investigating Physical Geography***. London: Oxford University Press.

Macaulay, J. and Clay, T. (1987) ***Nature Fights Back***. Auckland, New Zealand: Longman Paul.

Tamagno, B., Rivett, R., van Noorden, P. & Thurbon, K. (1990). ***Changing Environments.*** Melbourne: Cambridge University Press.

Underwood, G. (1991) ***People Power and Place.*** Melbourne, Cambridge University Press.

For teachers to base their teaching on media reports is not a new phenomenon, although the calls for greater relevance in the curriculum have certainly encouraged this trend. I can remember basing my own teaching in the 1970s on just such warnings given great publicity by the media and soothsayers of the time. How many of us here today remember reports like this one which appeared in *The Australian* on 19 June 1974?

"An increasing number of scientists believe that the earth is heading rapidly into another ice age – and that this is helping to upset weather patterns. They note that the earth's mean temperature has dropped by 0.3 degrees Celsius since 1940. While a drop of one-third of a degree seems little enough by day-to-day standards, it is quite a momentous change in the long-term time scale. Europe's foremost climate authority, Professor Hubert Lamb, of the University of East Anglia in England, declared recently the world is in an inter-glacial period – and on the downhill slope to a new ice age." [2]

My purpose here is not to dismiss either the importance of students being made aware of the quite legitimate concerns of scientists who are concerned with establishing how useful any particular theory is in describing, explaining and predicting what happens in nature. I am, however, fearful when the musings of scientists are presented to students as revealed truth, especially when the effects are to reduce further our young people's sense of hope in the future. I fear that we may be encouraging what Seligman has identified as 'learned helplessness'. Seligman and his colleagues showed that the greater subjects' experience with insoluble problems or other uncontrollable events, the greater their feelings of helplessness, and the lower their performance on later tasks. In other words, we can easily learn to 'give up'.

In Australia, a country which already has one of the highest teenage suicide rates in the world, one Year 11 student said to me recently, *"Why do I always come out of geography lessons feeling guilty, when the problems we are learning about are not my fault?"* Is the professionalism of teachers advanced by promoting feelings of guilt? And why do I also feel guilty? Because the geography teacher concerned was once one of my own students.

A recent publication from Geneva about the International Decade for Natural Disaster Reduction listed reasons for the Decade:

- Natural disasters kill more than one million people each decade and leave countless others homeless.
- Economic losses from natural disasters are on the rise. The global

economic costs of disasters rose from $44 billion in 1991 to $60 billion in 1992.

I am sure that these figures will be repeated in our classrooms over and over again. However I suspect that the other statistic in the same publication: that a 1977 cyclone in Andra Pradesh, India, killed 10,000 people, but a similar cyclone in the same area in 1990 killed 910 will get far less publicity. Similarly, while it is true that about 750 million people, 20% of the world's population, are living in poverty today, the same number were living in poverty 200 years ago when that figure represented well over 90% of the world's population. Today there are 3.6 billion people who are not living in poverty.

I accept that the information or 'facts' in these examples are open to interpretation and argument. However, which of these examples contains the kind of information that is publicised most commonly on the front pages of our newspapers, and which we are currently emphasising in our geography classrooms? If, as I suspect, it is the bad news, what effect does this have on the spirit of our young people? Is the professionalism of teachers, the exercise of wise, discretionary judgement in the interests of our students, best served by such teaching?

I am not suggesting that we should switch our allegiance and become purveyors of happy anecdotes. However, perhaps we should be acting more like scientists and less like political activists in our classrooms.

Let me give two further examples that have come to my notice. The first is in the form of a letter to our local newspaper in Brisbane, *The Courier Mail*, dated November 23rd 1993 by two students: Melissa Schaeller and Jana Plambeck of Nashville State Primary School, Sandgate.

"A couple of days ago we went to Shorncliffe beach to videotape some scenes of polluted water for a school project. We were amazed at the cleanliness of the beach. We needed to make the mess ourselves, but cleaned it up afterwards. Congratulations to all those who use the beach and keep it tidy".

Compare that with one of the activities described by Eric Sievers in an article in the August 1994 issue of *International Research in Geographical and Environmental Education* entitled 'Pressures on environmental education in the former Soviet Union'.[3]

"Lyudmila Zhirina of Viola in Bryansk, Belarus, an area heavily inundated by the cloud of radioactive fallout from Chernobyl, has initiated an environmental education curriculum in which school children with dosimeters compile a radiation map of their region learning in the process how to operate technical equipment, what radiation is, what its effects can be, how to organise and analyse data and where not to play".

The place of geography teachers in a world of change

And so finally, I come to the place of geography and geography teachers in a world of change. We are all aware of the bureaucratisation of education in the United Kingdom, only recently modified by the Dearing recommendations. I was also interested to read of Werner's interpretation of the call made by the provincial minister of education of British Columbia, Canada, in 1989 for *"a fundamental restructuring of the provincial curriculum with a focus on the development of problem solving and creative thinking"* (Werner, 1991[4]). The proposed restructuring included an ungraded primary curriculum; an integrated common curriculum; and a strengthening of assessment and accountability procedures. All these proposals have been advanced in a number of educational systems around the world as representing advances in teachers' professionalism. However, Werner dismissed them as being 'a classic curriculum fix', reflecting a deep-rooted belief in the power of curriculum reform to secure effective changes, especially if supported by some in-service training and supervision. He suggests that an alternative and more effective strategy would be *"to encourage teacher development, strengthen school culture, and build on those good practices already in place in schools"*. Werner goes on to say that more significant than centralised control of curriculum development and implementation, *"will be groups of teachers who search out and discuss better ways to understand and organise their programs and who take action in and within the structure of their own schools"*.

The difference between the two approaches is explained by Hargreaves as that between structural solutions and cultural ones. Structural changes such as those introduced in the United Kingdom, British Columbia and, I understand in train in New Zealand, underestimate the traditions, assumptions and working relationships that underlie existing practices. They assume that change can be achieved by getting the structures right and then making practice conform to them. The cultural view, on the other hand, regards practice as the product of deeply rooted beliefs, practices and working relationships amongst the students, teachers and lecturers who constitute the traditions of the system. In order that we may achieve our great expectations of geography in mitigating natural disasters, we have to work within the cultures of geography as a discipline, disaster management as a community responsibility, and teaching as a caring profession, concerned with the self-esteem of young people as knowledgeable, active and informed citizens. If we can achieve these, then we will undoubtedly contribute to the creation of the knowledgeable and involved people regarded as so essential.

Footnotes

1. Baker, K. (1991) The Greening of our Schools. IPA Review, Summer 1991. 31-37
2. "Weather upsets point to another age of ice", Task Force Report by John Henningham, Eric Cummins, Lyn Laidlaw, Virginia Westbury and Graham Williams, The Australian, 19 June 1974 Reproduced here from IPA Review, 45(1) 1992 p. 17
3. Sievers, E. (1994) Pressures on environmental education in the former Soviet Union.. International Research in Geographical and Environmental Education 3(2) (in print)
4. Werner, W. (1991) Defining curriculum policy through slogans. Journal of Education Policy 6(2) 225-238.

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